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Abstract

Back to Hit List

Grant Number: 5F31NR007379-04

PI Name: OXHORN, BRIAN C.

PI Title:

Project Title: AGONIST SPECIFIC ATP RELEASE FROM ENDOTHELIAL CELLS

Abstract: *DESCRIPTION: Our interest in cardiac EC's stem from the fact that cardiovascular disease continues to be a major health problem in our society. We believe that release of factors from cardiac coronary EC's which participate in the regulation of regional blood flow may have a role in normal cardiac function and in cardiovascular disease. It has been demonstrated that endothelial cells (EC's) release adenosine 5'-triphosphate (ATP) and autocoids outside the cell in response to various stimuli. It has been suggested that ATP release from these cells is receptor-mediated. It is possible that the P2/y receptor plays a role in mediating the ATP release. We want to test the hypothesis that cardiac EC release of ATP in response to agonists occurs both luminally and abluminally and test the effect of hypoxia and re-oxygenation on this process. We will utilize permeable membranes to primary cultures of EC's. This design is a paradigm of the in vivo situation defining apical versus basolateral compartments. Both enzyme luminescence assays and high-pressure liquid chromatography techniques will be used to measure ATP release from EC'S. We will also test the hypothesis that the release of ATP is associated with the release of nitric oxide (NO). Enzyme luminescence assays will be used to measure NO as well. We will administer both agonist and antagonists to ATP and NO release and evaluate any alterations in the respective releases.*

Thesaurus Terms:

adenosine triphosphate, cardiovascular pharmacology, coronary artery, secretion, vascular endothelium, vascular smooth muscle nervous control
hypoxia, nitric oxide, platelet, receptor

animal tissue, tissue /cell culture

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